# Should We Maintain Current Oil Production Levels?

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Oil prices have fallen dramatically from their peak, and the forward curve is in extreme contango, which means that forward prices are considerably higher than spot prices. The forward curve reflects the fact that more oil is being pumped than can be consumed, and storage facilities are nearing capacity.

Given the current situation, I continue to hear the following question:

*Why does it make sense to continue to pump oil that is ultimately put in storage? Doesn't it make more sense to simply slow down production and effectively store the oil in the ground?*

An analysis of this question is very relevant because it tells us something about the short-run elasticity of the supply of oil: If we



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cannot slow down the fields, then a short-term drop in demand can result in a very large short-term decrease in price. (It might also help us evaluate conspiracy theories about keeping the oil pumping to bankrupt Iran and the Putin regime in Russia.)

The short answer is yes, it is possible to dramatically slow down oil production fairly quickly. We do this, for example, during hurricanes in the Gulf. So it is possible to reduce production in the Gulf by a million barrels a day, and the Saudis can easily decrease production as well.

We cannot, however, simply shift, say, 100 million barrels of production from this year to next year. The constraint has to do with speeding up production in the future, not in slowing down production today.

A simplified and approximately accurate way to think about the extraction problem is that a maximum of X% of the remaining oil in a reservoir can be efficiently extracted in a given year. So if the reservoir currently contains 100 million barrels of extracted oil, and X = 10, we can pull out 10 million barrels this year, 9 million the next year, 8.1 million the following year, and so on.

If we choose to shut down the field this year (producing zero), we cannot move the foregone production to next year and extract 19 million barrels later. We simply push back the entire stream of production — and delay the resulting stream of future profits — by one year.

What this means, in this particular example, is that if we are using a 10 percent cost of capital to determine the present value of future oil revenues, oil prices have to temporarily fall in half before we shut down production. Oil prices have fallen in half, but forward prices have also fallen considerably, so we are still not at the point where we would want to slow oil production with a 10 percent required rate of return.

The key factors influencing this decision are the expected length of the demand shock (how long will the European slow down last), the extraction rate, and the discount rate. When the required rate of return is higher, producers have less incentive to cut production. This may be one reason why the Saudis, who are socking money

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away in their Sovereign Wealth fund, tend to be more willing to cut production in these situations than other regimes like Venezuela — which desperately needs the money right now and, therefore, has a much higher required rate of return.  It would also explain why a smaller E&P company, that may be liquidity constrained following a drop in oil prices, may be more reluctant to slow down production than a large integrated oil company.

My own view: Oil companies have traditionally used very high rates of return (maybe 10 to 15 percent) to evaluate these decisions, and as a result, they never slow down production. So far, they seem to be holding to this “never slow down” rule of thumb, which may not be appropriate given current interest rates. Given the appropriate rate of return they should now be using, which is probably closer to 3 percent, and the current magnitude of contango in the forward market, the case for slowing production is compelling.

Of course, we may want to continue producing to bankrupt Iran and the Russians.

*The ideas described here are based on my joint research with Professor Stathis Tompaidis.*

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